I.1 THE COMPLEX ROLES OF UNIVERSITIES IN THE PERIOD OF GLOBALIZATION

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Abstract

Universities worldwide are being called on to fulfil more and more roles, often with fewer resources. As a result, academic missions may become dispersed and the quality of the work may decrease. In this era, the function of universities as institutions devoted essentially to teaching and research may be weakened by the struggle to be entrepreneurial and market-relevant (Ben-David, 1977; Clark, 2004; Geiger, 2004). The academic drift of the 21st century raises concerns about the core functions of universities and how contemporary changes have affected academic missions. This paper mainly discusses research universities, which, as the leading and most influential academic institutions, have been most affected by this expansion of roles (Neave, 2000; Altbach and Balán, 2007). The goal of this paper is to examine the changing missions of universities and the impact on academe worldwide.

THE CORE MISSIONS

Since their establishment in Europe in the 12th century, universities have frequently been asked to undertake essential roles. Only when they were considered irrelevant were they isolated, as when the Enlightenment largely bypassed the European universities still mired in disputes between Catholics and Protestants from an earlier period (Perkin, 2006, pp. 172–3). Academic institutions have often been in conflict with their societies over missions and roles, and sometimes over ideology and politics. This tension has contributed to the creativity of universities over time, but has at times placed overwhelming burdens on them.

In the contemporary period, the teaching mission of the university is a central responsibility. The goal is to educate people to work effectively in an increasingly technological world – that is, to provide the technical skills needed for a growing number of jobs and professions that require sophisticated knowledge and an education that instils the ability to think critically. In many countries, general education is also considered a key university goal. Teaching has been the core role since the beginning. However, this function has become more complex and variegated, ranging from general education for undergraduates to advanced doctoral instruction and supervision in the most specialized fields.

Research is the other core function of universities, dating back to the establishment of the University of Berlin by Wilhelm von Humboldt in the early 19th century (Ben-David and Zloczower, 1962). It has come to be the central value of top-tier universities in all countries, and academic rewards and institutional prestige for individual faculty members are bestowed largely on the basis of research productivity. Research is defined in different ways by various disciplines and can take many forms. Pure research – the discovery of new knowledge – is generally considered the gold standard in terms of recognition and prestige. Nobel prizes are won for pure research. Applied research – increasingly emphasized as universities seek to generate income from research output – applies scientific discoveries to problems, commercial products or related practical goals. Research in the humanities may deal with interpreting texts or gaining insights on literature. Historical research may work from original data or may reanalyse existing research. Research in many scientific fields requires significant funding for laboratories and equipment. In other disciplines, research may need only basic library or internet resources. Research can thus take many forms and have different purposes. The focus on discovery, interpretation and originality links the vast array of research themes, methodologies and orientations.

UNIVERSITIES AS NATIONAL INSTITUTIONS

Universities have from time to time functioned as the central institutions for national development. Nationalist ideologies, for example, were nurtured in European universities in the 19th century. Universities were seedbeds of nationalism in many colonized nations in the 19th and 20th centuries. In these cases, the ideas that led to the establishment of modern nations were, in

part, developed by the academic community. Nations also used universities in their efforts to modernize. Humboldt's reformed University of Berlin was intended to contribute to Germany's national resurgence, as were the imperial universities established in Japan following the Meiji Restoration in 1868. Similarly, the American 'land grant' public universities were designed to contribute in terms of teaching, research and service to the development of the USA following the end of the Civil War in 1865. In these cases, universities were integral contributors to national development.

Universities have also played a central role in the growth of developing countries. In Latin America, the emergence of national universities following independence from Spain contributed to nation-building throughout the continent. These universities not only educated the nation but also provided ideas on national development (Ordorika and Pusser, 2007). In other parts of the developing world, universities have played a similar historical role – as incubators of nationalistic ideas, educators of the emerging governing class and providers of the technical expertise needed for nation-building (Ashby, 1966).

National universities in many parts of the developing world continue to serve as central institutions for nation-building, research and training. In Mexico, for example, the National Autonomous University of Mexico (UNAM), the main national university, produces most of the nation's published research and has traditionally educated the nation's political and intellectual leaders (Ordorika and Pusser, 2007). These state-sponsored universities are still central to national development, despite the emergence of diversified academic systems in many developing countries.

CENTRAL ACADEMIC ROLES

From the outset, universities have provided vocational education and training for the top professions, thus developing a direct long-term link to the economy and to the practical needs of society. Due to the ever-increasing sophistication of the economy, academic institutions have been obliged to provide training for a growing number of professions. The first universities formed centres of learning for the core professions of the time: law, the priesthood, medicine and the academic profession itself. Today's universities are largely responsible for educating business executives, engineers, architects, social workers, veterinarians and many other professionals. Specialized academic institutions provide training for certain professionals, such as school teachers in a number of countries and military officers in many; these institutions may have university status. The vocational role of higher education has become universal and more complex. In most cases, this function combines applied training with education in relevant basic academic disciplines.

THE PRESERVATION AND DISSEMINATION OF KNOWLEDGE

Even in the age of the internet, universities are repositories and organizers of knowledge. Academic libraries have traditionally been centres for preserving and organizing the cultural and intellectual heritage of a society. Libraries not only collect books and journals (the essential elements of knowledge), they also organize scholarly and scientific material of all kinds for effective use and preserve it for future generations. Even in the age of digital storage, libraries remain essential parts of universities and of the organization and preservation of knowledge (Baker, 2001). Universities help to organize knowledge, without cost to either the academic community or the general public. Thus, universities constitute an alternative to the growing commercialization of knowledge by for-profit service providers. The Massachusetts Institute of Technology's 'open courseware' project, which provides much of the content of most MIT courses on the internet, is an impressive example of how free access to knowledge can be provided by harnessing the intellectual work of the faculty and by organizing and disseminating material.

Universities preserve other cultural and scientific artefacts, ranging from works of art to collections of insects. Universities often sponsor museums and provide access to a wide audience. These museums are repositories that are often linked to the institution's academic programmes. In many countries with limited resources and little expertise in preserving cultural and historical treasures, universities are the only institutions capable of collecting, cataloguing and preserving such items. For example, Mexico's UNAM serves as the nation's national library and sponsors several respected museums.

UNIVERSITIES AS INTELLECTUAL CENTRES

Universities almost everywhere have become key creative institutions. Many professors, in addition to their teaching and research, involve themselves in the intellectual life of society as commentators, experts or analysts. Some are public intellectuals. The work of many academics can be seen on the opinion pages of major newspapers or on serious television talk shows. Academic life provides time, intellectual stimulation, debate and, in most countries, the protection of academic freedom, which encourages participation in societal debate and analysis (Altbach, 2007).

Academics also serve as experts on a wide variety of topics. Professors are asked to provide analysis for the government, the media and the public on topics ranging from space exploration to Egyptian mummies. Scientists provide expert analysis of environmental issues. Sociologists analyse social conflict. University professors are the largest community of experts in any society, and many play key roles in interpreting science and scholarship for a wide audience. Professors sometimes bring their expertise directly to the government by serving as ministers or taking other posts. They occasionally run for public office. They often engage in oppositional politics by providing ideas or analysis and sometimes by participating directly in political activism.

Academics have from time to time been involved in social and political movements. They were engaged in the rise of nationalism in Europe and in many developing countries. They were key participants in the European revolutions of 1848 and in the Latin American reform movements of the early 20th century that led to the Cordoba Reforms of higher education and to significant democratic change.

Students also participate in intellectual, social and political life beyond the campus. Student activist movements frequently stimulate political conflict and sometimes reform or even revolution – for example, in the European nationalist movements of the 19th century, the independence struggles in developing countries, and the activist movements of the 1960s and 1970s worldwide. Universities provide an atmosphere of ideas, freedom and debate that stimulates student activism and social involvement.

Academic institutions frequently sponsor journals and other publications that contribute to intellectual life. Some even own or manage television and radio stations. These enterprises help to educate people and add to the wealth of ideas in society. Universities, as non-profit organizations with guarantees of academic freedom, are uniquely suited to provide the autonomy for both individuals and groups to engage in intellectual creativity, dialogue and analysis.

UNIVERSITIES AS INTERNATIONAL INSTITUTIONS

Academic institutions operate in a global environment and bring science and scholarship from around the world to a local community. Universities are the central links with the international scientific community. They have the necessary intellectual and scientific infrastructure, through information and communication technologies (ICTs) and informal networks. Professors are involved with international research in their disciplines and fields. Academic institutions are engaged in exchange programmes, the hosting of international staff and students, collaborative international research projects, and other activities. More than any other segment of society, universities are engaged constantly in the international exchange of ideas, data and knowledge.

In developing countries, universities are the central link to world science, scholarship and intellectual life. In much of Africa, where internet infrastructure remains inadequate, universities are the best-connected institutions. Academic communities use the main international languages of science, and many in the academic community have studied abroad.

ACCESS AND EQUITY

Universities provide the education needed for most skilled occupations and professions in society. For almost a century, universities have also been seen as instruments for social mobility – a way for individuals to obtain the skills they need to improve their incomes and status. Massification has, of course, brought access to a wider section of the population. Many countries and academic institutions have also developed strategies to enhance access for underserved populations – racial, religious and ethnic minorities, women and low-income groups. Scholarship, bursary and loan programmes, as well as a variety of affirmative-action efforts, have been put into place. Access to higher education is recognized as an important societal goal. Almost everywhere, even in countries where a large proportion of the relevant age cohort has access to post-secondary education, problems of equity remain. Typically, higher status socioeconomic groups have greater access than others. In developing countries, the goals of both access and equity remain to be achieved. In the North, while access is widespread, equity is still problematic.

ENGINES OF ECONOMIC DEVELOPMENT

From their origins, universities have stimulated local economies. Any university generates economic benefits for its community through local purchases, property investment and expenditures by students and faculty. Starting with the Humboldtian reforms in Germany, the rise of the 'land grant' universities in the USA, and the establishment of the Japanese imperial universities in the 19th century, universities have been designed to contribute directly to economic development. Universities support knowledge- and technology-based industries that make use of the knowledge produced by the institutions – including skills of graduates and scientific innovations. Universities have contributed to this development by establishing science parks and even by investing in companies that use university-based knowledge. Universities are often included in government economic plans. Societies increasingly count on universities to contribute both

directly and indirectly to economic and technological development. China is an excellent example of a country where academic institutions have been recognized as central to development; several key Chinese universities have built science parks and established companies to take advantage of academic research (Ma, 2007).

GENERAL EDUCATION

In a few countries, such as the USA, universities have from their origins provided first-degree students with a broad general education in the liberal arts and sciences. The idea of general education, as it has evolved, is to provide students with a broad grounding in the basic knowledge they need in contemporary society and also with skills in logic, critical thinking and writing. The curriculum in much of the world has traditionally been based on specialized knowledge in specific disciplines and has not included general education. There is now more discussion of the role of general education, and some countries have added this to the university curriculum.

HISTORICAL PERSPECTIVES

Medieval universities were established to educate men for the legal, medical and religious professions. They also preserved knowledge through their libraries and undertook the specific work of translating scientific and other literature from Arabic to Latin and disseminating it in Europe. Universities have been subject to different forms of external authority. In the 13th century, the Roman Catholic Church and the French monarchy founded the University of Paris, one of the first and most significant universities. In Italy, students were instrumental in establishing universities in Salerno, Padua, Bologna and elsewhere, and had a dominant role in governing them. Medieval universities were mainly focused on professional education, but they also had other functions. They engaged in intellectual, religious and, occasionally, political life. For example, the University of Paris helped to settle a schism in the Catholic Church in 1409 (Perkin, 2006, p. 168). In the 16th century, the ideas that led to the Protestant Reformation came from the universities in Germany. Universities thrived when they were engaged in professional education and the intellectual life of society.

When universities cease to be engaged with society and with the emerging scientific and political developments of an era, they tend to be moribund. Beginning in the 17th century, most European universities turned inward. They played almost no role in the Enlightenment and were in the doldrums. Their role was limited to training priests and a few civil servants (Perkin, 2006, p. 173). The tremendous creativity of the Enlightenment and the technological innovations of the Industrial Revolution largely took place outside of the universities. The idea that universities were truly 'ivory towers' designed to be separate from society, unwilling to open their doors to the emerging middle classes, meant that universities were largely uninvolved in the dynamic scientific and political developments of the era. With only a few exceptions, universities received little public financial support because they were not perceived as contributing significantly to society. Napoleon, for example, was so unimpressed with the French universities of the *ancien régime* that he abolished all of them – and replaced them with the vocationally oriented *grandes écoles*.

When Wilhelm von Humboldt reformed the University of Berlin in 1810, the modern research university was established. First in Germany and then elsewhere, academe began to recover. Research universities were not only committed to bringing research to the centre of the academic enterprise but also to linking research to applied science and national development. Towards the end of the 19th century, American land grants expanded the research university concept to include the role of direct service to society and the key function of engagement with agriculture and industry. These developments, pioneered in Germany and the USA, spread elsewhere and brought universities back to the centre of society. Since the early 20th century, universities or university-related laboratories have been involved in key scientific and intellectual developments in most countries. The development of radar, atomic energy and many pharmaceuticals illustrates this point.

Historically, scientific research has not always been conducted mainly in universities. The 'academy of science' model – used in the former Soviet Union and to some extent still in practice in Russia, China and differently in the National Centre for Scientific Research system in France – concentrated research in scientific institutes that were separate from universities (Vucinich, 1984). Universities were mainly focused on teaching and did not have significant funding for research. It is generally agreed that separating research entirely from teaching is not the best way of organizing either, and there is a worldwide trend towards combining the two functions in universities.

Clark Kerr coined the term 'multiversity' to capture the historical evolution of the modern university (Kerr, 2001). He pointed out that the American research university, considered by many the most influential contemporary academic model, combines the English collegiate tradition, the German research idea and the American value of service to society. The American variant of the

German research university has, over time, taken on many new roles and is without question a key pillar of the knowledge economy.

THE IMPLICATIONS OF MASSIFICATION

Since the Second World War and especially after the 1960s, enrolment in higher education increased dramatically worldwide, doubling from 40 million in 1975 to 80 million in 1995 and perhaps reaching 150 million in 2007. While much of the growth between the 1960s and 1990s occurred in developed countries, current growth is mainly in developing countries. The proportion of the age group participating in higher education has increased from 10% or less in most developed countries to over 50% today, although some of the poorest countries still enrol just a few per cent of the relevant age group; worldwide, the proportion is about one quarter (*Higher Education in the World 2007*, p. 384). In developing and middle-income countries, where participation rates remain modest – 20% in China, somewhat less than 10% in India and just a few per cent in much of sub-Saharan Africa – expansion is gearing up. Only the USA and to some extent Canada had mass higher education systems prior to the 1960s (Trow, 2006). Most of the growth of the coming half-century will happen in developing and middle-income countries (Task Force on Higher Education and Society, 2000).

Massification was, without question, the dominant force in higher education in the latter half of the 20th century and will continue to have an impact in the 21st century. The emergence of mass higher education systems with different kinds of post-secondary institutions serving diverse segments of students has been a revolutionary change. Nevertheless, this shift occurred in most countries without much planning. For centuries, higher education was considered the preserve of a small elite, and academic institutions tended to be small and fairly uniform. Mass higher education meant not only an expansion in the number of students but also a dramatic increase in the number and kinds of academic institutions. Massification necessitated the emergence of a differentiated academic system with institutions serving separate purposes.

The emergence of post-secondary institutions with different purposes, goals, students, facilities and academic staff has altered the landscape of higher education worldwide. New kinds of institutions with different missions have extended the role of higher education in unprecedented ways. Vocationally oriented academic institutions have absorbed much of the mass demand in many countries. In the USA, community colleges, which are mainly vocational and typically require only a high school diploma for entry, prepare students for many kinds of jobs that call for technical training. Community colleges also provide general education courses that can lead to transfer to a four-year baccalaureate college or university. One of the most effective elements of the US higher education system is the coordination between the various kinds of institutions, which allows students to transfer from one kind of institution to another and take their academic credits with them (Altbach, 2001). Not only do community colleges allow almost universal access, they provide vocational training in a wide range of fields and, for a minority of students, upward transfer options within the system. There is a wide array of entry-level post-secondary institutions around the world, such as the *Fachhochschulen* in Germany, the *instituts universitaires de technologie* in France and many others. While these institutions do not generally provide the relatively easy mobility of the American community college, they do satisfy important access and vocational needs in society. Many countries, including China, are examining the community college model.

There has also been an expansion of a relatively broad range of baccalaureate and master's-degree-equivalent universities, which provide access and meet new academic needs. These universities represent both the public sector and the rapidly expanding private sector. At times their curricula are specialized. In general, these universities have modest entry requirements so as to provide fairly wide access to students. They focus mainly on teaching but often have some interest in research, and are frequently involved in a range of social service activities.

Research universities form the pinnacle of the academic system, typically serving only the most able students and constituting only a modest number of institutions (Clark, 1995; Altbach and Balán, 2007). As the most complex institution in the system, the research university combines both basic and applied research with teaching at a range of levels, from baccalaureate to doctoral. Research universities generally offer specializations in the mainstream academic disciplines, and many also have professional schools in fields such as law, management, medicine, engineering and education. Interdisciplinary research programmes and institutes in emerging fields such as biotechnology, as well as science parks and other links with industry and commerce, add to the complexity of research universities. In most countries, these universities obtain the largest proportion of research funds – often 80% or 90% of all R&D money available to higher education.

In increasingly complex academic systems, specialized academic institutions have emerged, three of the most famous being the prestigious Indian Institutes of Technol-

ogy, which focus on engineering and related disciplines; INSEAD, a prestigious school of management in France; and the University of California at San Francisco, which focuses on medicine and the biomedical sciences. Specialized schools in law, veterinary science, pedagogy and many other disciplines also exist in academic systems. Whether created by the government or having emerged over time to meet perceived market needs, academic systems are by now highly differentiated in most countries. They are the result of both massification and the educational and research needs of modern society.

Mass higher education has brought with it greater inequality in academic systems – disparities between the high-quality universities at the top and the many modest or low-quality mass-access institutions at the bottom. It is likely that the top institutions have improved in industrialized countries, while worldwide the bottom sector has declined in quality. Massification inevitably creates more variations and diversity in academic systems. It creates opportunities for access that are unprecedented in world history, but at the same time it creates systems that are less equal and more difficult to support financially.

THE PROBLEM OF THE PUBLIC GOOD

One of the serious debates about higher education in the past several decades relates to whether it is a *public* good – one which adds value to society by educating its people, who will then be productive citizens – or a *private* good – one which mainly benefits individuals, who earn more money and enjoy other advantages as a result of their education (Bloom et al., 2006). The logic of the debate is, of course, that if higher education is a private good, then those who benefit from it – the students – should pay. If higher education is mainly a public good, then society has a responsibility to provide support. The argument is as much one of philosophy, ideology and politics as it is of economics. Those advocating the private-good stance are motivated both by their interpretation of economic realities and by a belief that the state cannot afford to pay most of the cost of mass higher education. In recent years, private-good advocates have prevailed to a significant degree. As a result, higher education budgets in many countries have stagnated or been reduced. Public academic institutions have been asked to fund an increasing portion of their costs by increasing tuition fees, becoming more commercialized and selling their services to the market (Kirp, 2003; Geiger, 2004).

The cost of providing higher education has increased greatly in recent decades. The demands of mass access combined with the increased costs of research universities have placed greater pressure on the state to provide funding. Due in part to the private-good ideology, public authorities in many countries have shifted the financial responsibility for higher education to the 'users', that is, students and their families. In some cases, loans and other funding programmes have been introduced to lessen the financial burden (Johnstone, 2006). Whether it is in fact beyond the financial ability of the state to support expanded access to higher education is arguable. In any event, most countries have in fact chosen to shift a significant part of the financial obligation to students.

One problem with the contemporary emphasis on the private good is the fact that research universities are public-good institutions. While their graduates benefit from their academic preparation and degrees, much of the work of research universities emphasizes the public good. Basic research, for example, may in the long run result in commercially valuable products, but the research itself generally yields little direct profit. Basic research is a public good and therefore requires support. Research universities require basic research infrastructure, including talented (and often highly paid) professors, up-to-date laboratories and other facilities, and graduate and often postdoctoral programmes. They must have an academic culture that fosters a research-oriented environment (Ben-David, 1991). Furthermore, many of the services performed by research universities are non-commercial. Research universities have been asked to commercialize their research and other activities. This may distort their most important missions and in the long run weaken them (Washburn, 2005; Sörlin and Vessuri, 2007). Research universities also sponsor a wide array of service and outreach activities, including concerts, performances, art exhibitions and occasionally museums. These activities have little commercial potential.

Mass higher education is intended to provide access to students from all social classes. While it is possible for students from wealthier segments of the population to pay tuition fees for higher education, students from poorer backgrounds may find the costs unaffordable and may be reluctant to take out student loans. Without arrangements for scholarships and grants, a private-good approach may in some ways limit access to higher education for a significant part of the population.

The idea of the public good as a key factor in supporting higher education relates directly to the roles that academic institutions can play in society. Many of the complex activities of post-secondary institutions – from cultural and outreach activities to the most advanced basic research – are directly linked to the public good.

CONTEMPORARY CHALLENGES

In playing the complex and highly important roles that have been discussed in this paper, universities face significant challenges. The public-good ideal has been called into question and a variety of related problems have emerged.

Private higher education is rapidly expanding in many parts of the world and now enrols more than half of all post-secondary students in much of Latin America, the Pacific Rim and other areas (Altbach and Levy, 2005). With the exception of some institutions in the USA and Japan and a handful of other examples, private academic institutions are seldom high-prestige universities, have limited purposes and programmes, and depend exclusively on tuition income for survival. Many are either formally or informally for-profit schools. The private sector in higher education is, almost by definition, a private good, that is, students are charged for a specific higher education programme that they hope will contribute to their career and advancement. With few exceptions, private institutions have neither the commitment nor the ability to participate in research or service roles. They can seldom build the facilities needed for advanced research, they rarely offer advanced degrees in the sciences or other fields that require expensive facilities, and they are largely uninterested in the cultural and social roles of higher education.

The privatization of public higher education has also contributed to narrowing the roles of universities. In many countries, public universities now receive a smaller proportion of their budgets from government sources. As a result, they must generate their own income from tuition fees, research, consulting, commercial enterprise and other sources. This privatization has meant that the broad traditional purposes of the university – most of which do not readily produce income – have to some extent been de-emphasized while potentially income-generating activities have become more central.

The marketization of higher education is closely related to privatization. The functions of the university are increasingly subjected to market forces. Knowledge that can earn income is valued and supported. Fields that produce little income are de-emphasized or even discarded. Tuition fees are an example of market forces at work. More academic institutions charge tuition fees, which in many instances are increasing. Students are sometimes charged differential fees. In countries ranging from Uganda to China, some students pay low government-subsidized fees, while others are charged much higher amounts. Entrance standards are sometimes adjusted for high-fee-paying students as well. Research facilities and faculty time are 'sold' to companies and other organizations as a way of earning income – at the expense of basic research that does not earn quick profits. Competition has increased among academic institutions in an effort to lure students, attract profitable research projects and generate prestige. The current emphasis on league tables and rankings is very much part of the marketization of higher education (Sadlak and Liu, 2007).

All of these challenges are related to the demands made on universities to be more financially self-sufficient and market driven. This trend creates an immense contradiction between these new emphases and the role that universities have played over the past century in providing access to ever larger numbers of students. Marketization trends are often in conflict with higher education's goal of providing equity and the chance to obtain skills and better employment to underserved populations. Access and equity require that, through scholarships or other programmes, higher education be made affordable for segments of the population that have traditionally been unable to afford expensive higher education.

Increasingly complex goals require larger and more sophisticated academic institutions. Clark Kerr (2001) pointed out in 1963 that universities require larger and more complex administrative and governance structures to fulfil all their new roles. Added to this need is the requirement of increased accountability – not only for the expenditure of funds but also for the performance of many aspects of the academic enterprise, including student achievement and faculty productivity. Traditional academic governance, which typically left major decisions in the hands of senior professors and included few administrative resources, does not work well in the large, complex institutions of the 21st century. Universities need administrative structures that can coordinate the various elements of the institution and carefully allocate and measure resources. Professionals are required in the areas of financial management, student services and many others. To handle their more diverse functions, universities have added offices to deal with legal matters, intellectual property, relations with business and industry, psychological counselling for students and other areas. Faculty members can no longer administer and manage these universities.

Traditional academic decision-making patterns no longer function well. New governance arrangements such as senates to managing committees have been established. These bodies include both managers and academics, and in some cases students and stakeholders from outside the university. Academic institutions and systems are experimenting with management patterns that take into account the new realities of higher education.

Accountability is an additional reality, created by the

size and complexity of academic institutions and systems. Funders of higher education – usually government authorities – demand information about the management and performance of academe. This requires an additional layer of management as well as the unprecedented collection of data on all aspects of university affairs. Internal data are needed to ensure efficient management. Performance indicators and other reports must be generated for funders and other groups. Universities have become complex organizations that require sophisticated management systems and new ways of governing the academic enterprise. They are, at the same time, bureaucracies and communities of scholars. The challenge of management and governance is to reconcile these different and sometimes contradictory realities.

THE SPECIAL CHALLENGES OF DEVELOPING COUNTRIES

The issues discussed in this paper are relevant to all countries and circumstances. Developing countries, however, face additional challenges that make building an effective university system more difficult. The heritage of colonialism in many parts of the developing world and the fact that contemporary universities are Western institutions with few links to indigenous intellectual traditions make it more difficult to build successful universities (Altbach, 1998; Shils and Roberts, 2004). Colonial authorities were reluctant to permit much expansion of higher education and generally kept higher education institutions small and limited in size and scope. The institutions were mainly intended to train members of the colonial administration, so at the time of independence most higher education systems were small, weak and limited in scope.

Massification occurred later and more intensively in developing countries than in industrialized nations. The existing academic systems, enrolling a tiny fraction of the relevant age groups, often under 1%, have found it difficult to cope with expansion. In the coming decades, most worldwide expansion of higher education will take place in developing countries, which are less able to afford rapid expansion. The institutions have felt immense pressure to provide qualified academic staff and campus facilities (for example libraries, classrooms and laboratories). One key issue is how to finance expansion so as to provide more access; governments have often found this task impossible (Task Force on Higher Education and Society, 2000).

The failure to meet the demand for access has led to a series of problems that have plagued developing countries. It has proved impossible to severely limit enrolments, so academic institutions have become increasingly overcrowded. The facilities cannot accommodate all the students admitted to study, and as a result students cannot gain access to classrooms or libraries. In part as a means of limiting enrolment without denying access, many universities have implemented draconian procedures to eliminate students who cannot keep up with the work. The overall quality of higher education has declined in much of the developing world as a result of overcrowding and inadequate resources.

As discussed above, the financial crisis has contributed to the rise of private higher education. The fastest-growing private higher education sectors are in developing and middle-income countries. With some notable exceptions, the new private sector is intended to absorb demand for access at the bottom of the higher education system. Many private institutions are for-profit, with narrow aims and limited curricula (Altbach and Levy, 2005).

In many countries, while access has been significantly expanded, equity has not been achieved. Students who gain access to less-well-established academic institutions receive a questionable education, and many are unable to complete their degrees. In some places, failure to coordinate academic degrees with the job market has resulted in educated unemployment. The causal factors include the inadequate quality of the graduates of many universities and the economy's inability to keep up with the production of degree holders. The Indian prime minister, for example, recently complained about the low quality of many undergraduate colleges, which put graduates at a disadvantage in the job market.

These problems weaken the ability of universities in developing countries to fulfil all their missions, especially those related to the public interest. Even flagship research-oriented universities are often unable to fully engage with the international scientific community, sponsor top-level scientific research, maintain good libraries and information technology infrastructure, and so on. Even at these universities, the pressure of numbers is great and funds are inadequate. Indeed, in some cases, such as at Makerere University in Uganda, high-fee-paying students are admitted for evening classes in order to earn extra funds. The extra teaching and other money-earning activities leave professors with little time for research. Research universities in developing countries need both funding and autonomy in order to take their place in the international research-university network. As part of this world network, these institutions must keep up with their peer universities in industrialized nations.

Nevertheless, in many ways, universities in developing countries are falling further behind.

The challenges are very great indeed: funding; balancing the consequences of massification with the maintenance of quality; supporting world-class professors; forming an academic culture dedicated to academic freedom, intellectual competition and meritocracy; and providing a quality education to undergraduate students. Developing countries, like the rest of the world, require a differentiated academic system, with mass access at the bottom and a small research-focused sector at the top. Mission differentiation is difficult to build where it has not existed previously, but it is central to a successful academic system.

CONCLUSION

Universities are multifaceted institutions in all societies. They are especially important to the knowledge economies of the 21st century, but their roles extend far beyond this. Universities are quintessential public-good institutions; they are an essential underpinning of intellectual life in all societies, and especially in developing countries. They are key international links for science, scholarship, culture and ideas. Understanding the complex roles of universities is a first step towards providing the needed support – not only appropriate public funding but also academic freedom and autonomy. Too often, the government and the public see universities merely as economic engines and training grounds for key personnel. As argued herein, they are much more than this. Universities play an important role in economic development, but this is only part of their broader mission.

Due to the tremendous pressure placed on higher education institutions to cope with increased numbers of students and societal demands in a context of inadequate resources, universities have become mainly reactive institutions that deal with new responsibilities as best they can. They can be creative only in ways that permit them to respond to external pressures. There seems to be neither the time nor the resources to consider new approaches to educating students or serving society. In much of the world, higher education institutions are part of increasingly competitive societies. As a result, society asks them to react to the pressures of competition.

Are these trends a good thing for higher education and, in the long run, for society? Universities have been forced to give up part of their essential role as centres for intellectual and cultural life and as social analysts and critics. They have less 'space' for creative and independent work. There is less autonomy for decision-making and for thought.

At the same time, universities are linked as never before to the practical needs of society as dictated by governments (for public institutions) and by the market (for both public and private institutions). At the beginning of the 21st century, the pendulum has swung way too far towards the government and the market, at the expense of the traditional autonomy of academe. Society would be better served by a more balanced academic environment in which universities could be more attuned to the broader public interest and to the traditional values of academic autonomy and independence.

This paper has mainly discussed the top tier of the academic system: the research universities that provide the most advanced education, a home for public intellectuals and the greatest number of international linkages. These institutions need special understanding, care and support. In most countries, the main exception being the USA, they are public institutions. Research universities do not represent the entire academic system. Most students attend universities that focus mainly on teaching, and most academic staff teach at such universities. These institutions also deserve support because they provide most education and training.

Universities serve many purposes in contemporary society and they deserve support, not only for their direct economic role. Societies that ignore the manifold purposes and roles of universities will be much weaker. Universities are engines of the knowledge economy, but they serve the humanistic and cultural goals of society and of individuals.

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